

IDOT PTC Project

Project Overview

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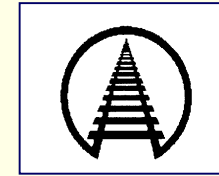
PTC Program Management



FRA



IDOT



AAR

NAJPTC Program Management Committee



ARINC
Team

Prime
Contractor

Systems
Engineer

Systems
Integrator

Other
Contractors

Lockheed Martin Team

Eastern Project,
Simulation Tools, etc.

IDOT PTC Project Objectives

- **Demonstrate PTC *Safety Functionality***
 - Prevent Train to Train Collisions
 - Prevent Derailments due to Overspeed
 - Protect Roadway Workers Operating Within Limits of their Authorities
- **Demonstrate *Revenue-Ready* System for Operation of Passenger Trains *> 79 mph* Intermixed with Freight Trains**
- **Develop *Interoperability* Standards**
 - Transition between Different PTC or Other Train Control Systems at Track Speed

IDOT System Features

- **Warnings / Enforcement of Authorities and Speeds**
 - *Warnings provided in advance (except emergencies)*
 - *Enforcement is last resort*
- **Locomotive Activation of Crossing Warning Systems**
 - *Eliminates need to extend crossing track circuits for high speed operation*
- **Modular Design**
- **Pacing & Fine Resolution Train Tracking**
 - *Potential to improve velocity / capacity / service reliability*
- **Flexible Block**
 - *Permits closing up of trains - reduces freight train delay during overtakes*
 - *Potential to alleviate need for wayside signals*
- **Cost Effective**
 - *Non-Proprietary, Open Systems Architecture*

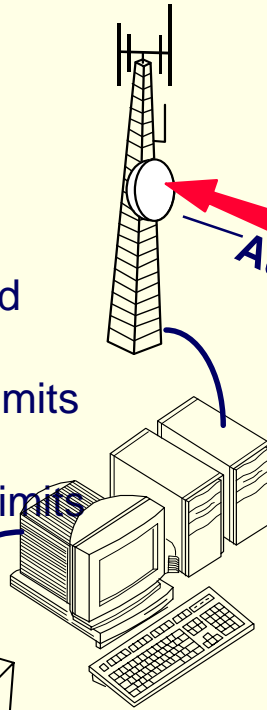
PTC General CONOPS

PTC Server

- Stores train, track sensors, switches and detectors database
- Computes authority limits
- Transmits movement authority and speed limits to trains



Computer-Aided Dispatching

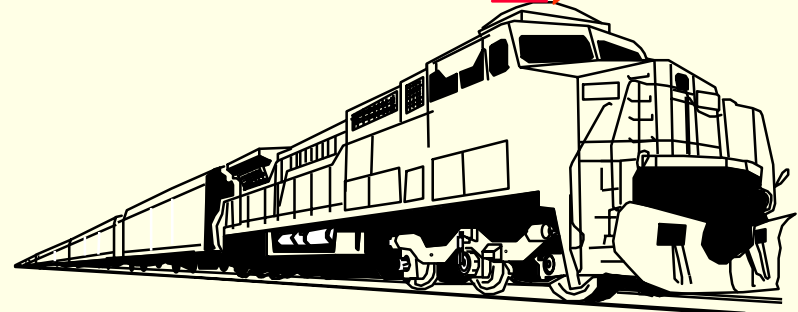


Data Link
Location Reports
Authorities



GPS

Position Reference

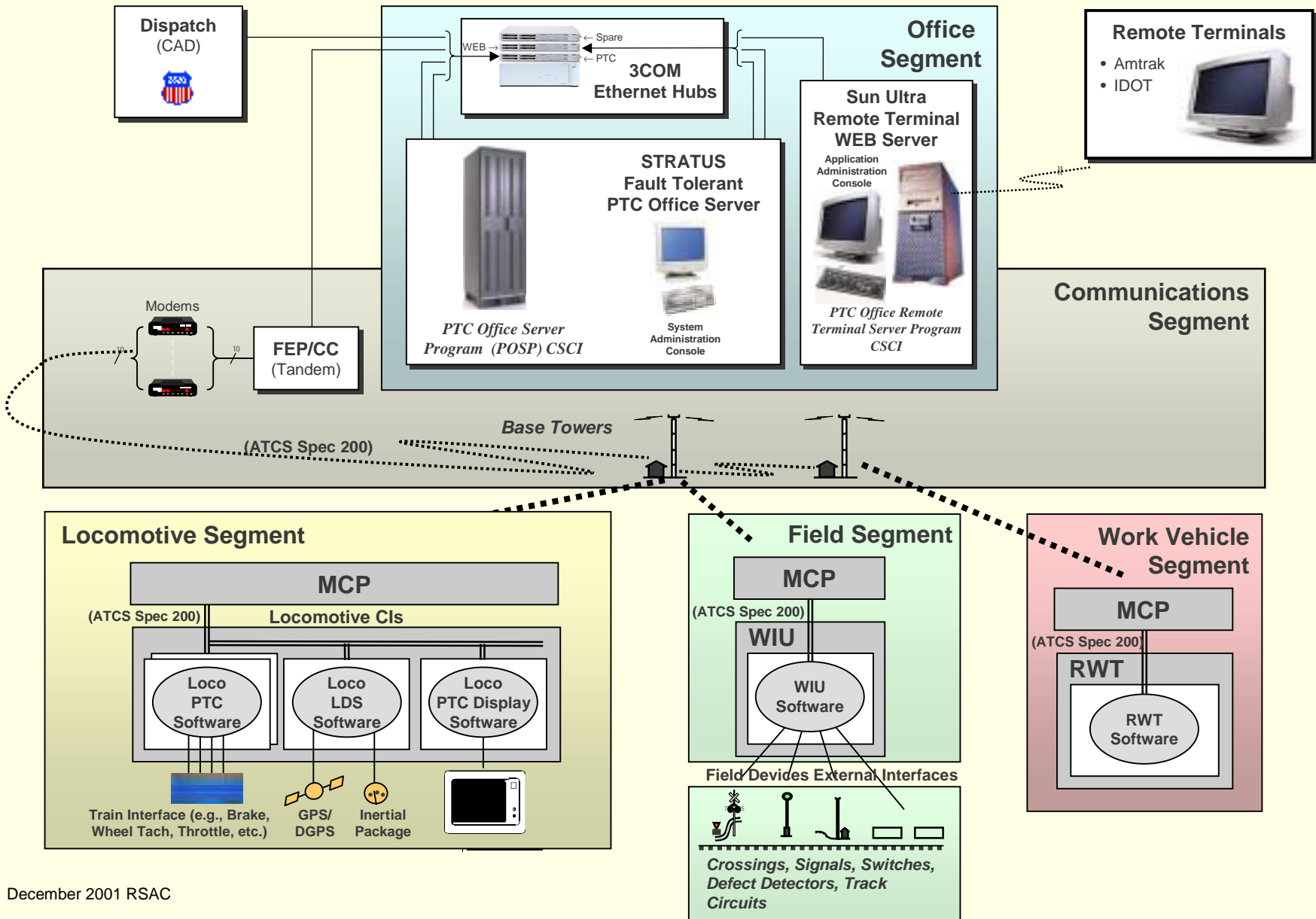


Onboard Equipment

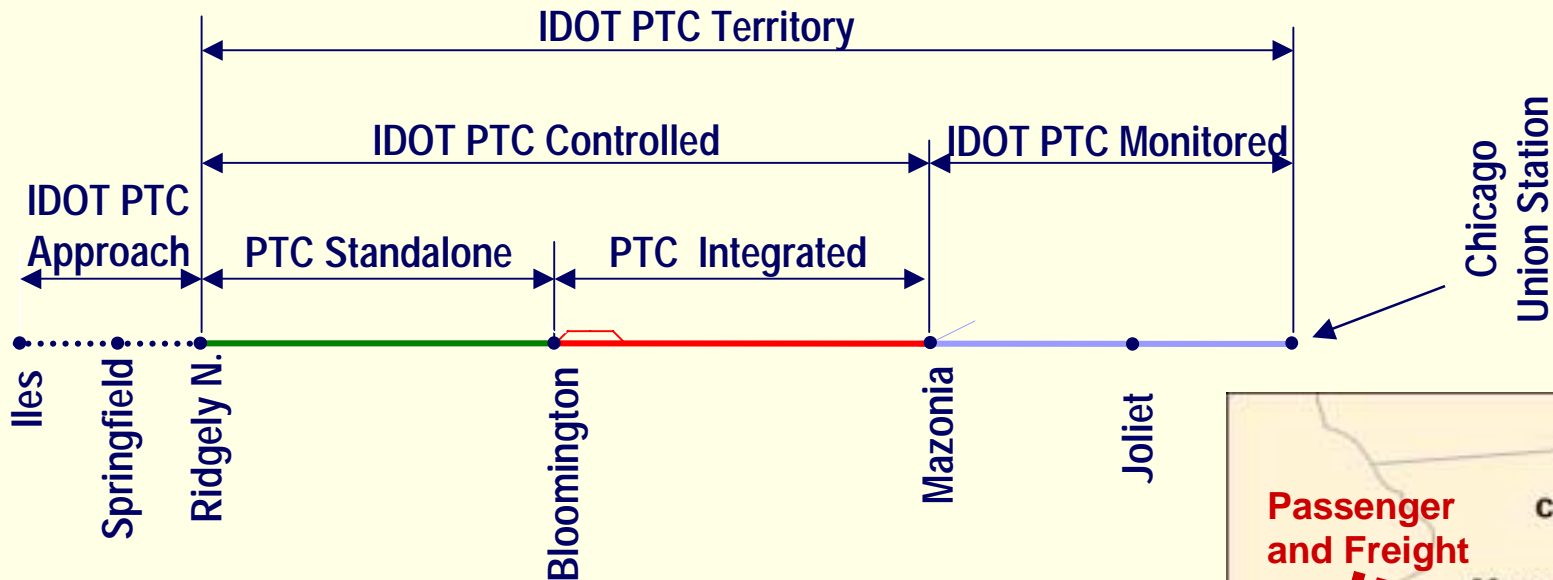
- Communicates with server in real time
- Warns crew of impending violations
- Enforces authority and speed limits
- Reports location to server

Communication-Based Train Control (PTC) uses LDS & Radios in Determining & Reporting Occupancy.

IDOT PTC System Design Baseline

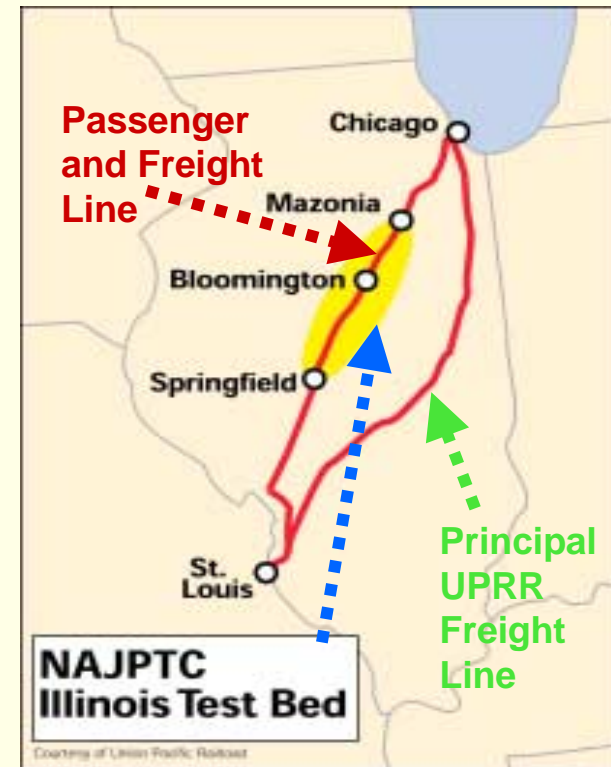


Overview of IDOT PTC Territory



Handle Mixed Traffic ...

- Passenger
- Freight
- Non-Communicating Trains



Summary

- **Project is Near Midpoint in Schedule**
- **Preliminary Design Review (PDR) held in July (Major Milestone)**
- **Critical Design Review (CDR) for Build 1 Underway**

Good Progress and Momentum to Date